

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1-111. (Cancelled)

112. (New) An isolated nucleic acid comprising:

- (a) a nucleotide sequence encoding a CatSper1 protein of SEQ ID NO: 2; or
- (b) a nucleotide sequence complementary to the nucleotide sequence of (a).

113. (New) The isolated nucleic acid of claim 1, wherein said nucleotide sequence encoding a CatSper1 protein comprises SEQ ID NO: 1.

114. (New) An isolated nucleic acid comprising:

a nucleotide sequence encoding a polypeptide having at least 95% amino acid sequence identity with a CatSper1 protein of SEQ ID NO: 2,
wherein said polypeptide has CatSper1 activity when expressed in a cell capable of expressing CatSper1 activity.

115. (New) The isolated nucleic acid of any one of claims 112-114, further comprising:
a heterologous regulatory region operably joined to said sequence.

116. (New) A kit for detecting a CatSper1 nucleic acid comprising:
an isolated nucleic acid of any one of claims 112-114; and
a means for detecting said isolated nucleic acid.

117. (New) The kit of claim 116, wherein
said means for detecting said isolated nucleic acid comprises a detectable label bound thereto.

118. (New) The kit of claim 116, wherein
said means for detecting said isolated nucleic acid comprises a labeled secondary nucleic acid which specifically hybridizes to said isolated nucleic acid.
119. (New) A vector comprising an isolated nucleic acid of any one of claims 112-114.
120. (New) A vector comprising an isolated nucleic acid of claim 115.
121. (New) A vector comprising a genetic construct capable of expressing a nucleic acid of any one of claims 112-114.
122. (New) The vector of 121, wherein said nucleic acid is operably joined to a heterologous regulatory region.
123. (New) The vector of claim 121, wherein said nucleic acid is operably joined to heterologous coding sequences to form a fusion vector.
124. (New) A vector comprising an isolated nucleic acid of any one of claims 112-114 operably joined to a reporter gene.
125. (New) An isolated cell transformed with a nucleic acid of any one of claims 112-114.
126. (New) An isolated cell transformed with a nucleic acid of claim 115.
127. (New) An isolated cell transformed with a vector of claim 119.
128. (New) An isolated cell transformed with a vector of claim 120.
129. (New) An isolated cell transformed with a vector of claim 121.

130. (New) An isolated cell transformed with a vector of claim 122.
131. (New) An isolated cell transformed with a vector of claim 123.
132. (New) An isolated cell transformed with a vector of claim 124.
133. (New) The isolated cell of claim 125, wherein
said cell is selected from the group consisting of bacterial cells, yeast cells, insect cells,
nematode cells, amphibian cells, rodent cells, and human cells.
134. (New) The isolated cell of claim 125, wherein
said cell is selected from the group consisting of mammalian somatic cells, fetal cells,
embryonic stem cells, zygotes, gametes, germ line cells and transgenic animal cells.